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ABSTRACT

This study examined the relative effectiveness of two variations of an elective course on self-control and study behavior in modifying academic performance of freshmen undergraduate students enrolled in the independent studies program of the Universidad Simon Bolivar, in Venezuela. Of the 29 freshmen students selected to participate in this study, 9 were randomly assigned to a self-control group, 10 were similarly assigned to a self-control and thinking lessons group, and the remaining 10 students formed a no contact control group. Data on four measures of academic performance were collected: total scores in both the self-control schedule and the self-control and study behavior schedule, the study orientation score on the Survey of Study Habits and Attitudes, and final score admission at the Independent Studies Program. The univariate analyses of variance showed that there were no differences among the three groups for the first three measures. Significant differences were observed with the fourth measure. Overall results obtained indicated that the two experimental groups were equally effective in producing significant increases in academic performance compared to a no contact control group, and that there were no differences in academic performance between the two experimental groups. (EGS)

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EFFECTS OF SELF-CONTROL AND THINKING TOOLS TRAINING ON ACADEMIC PERFORMANCE OF UNDERGRADUATE VENEZUELAN STUDENTS

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The purpose of this study was to compare the effects of Self-Control training alone or in combination with 10 CoRT thinking lessons, on academic performance, of students from the independent studies program of the Universidad Simón Bolívar, in Venezuela. Results indicated that the two experimental groups were equally effe[illegible] in producing significant increases in academic performance with respect to a no contact control group.

Although there were no differences in academic performance between the experimental groups, the students that received the CoRT lessons were greatly satisfied with the utility of these tools in their general studies courses.

Variations in the self-control + thinking lessons package, will be test in the future, in order to evaluate whether thinking lessons, could be a better adjunt to the self-control package, actually been used in Venezuela.

Self-control + CorT lessons

Academic performance

Educational investigators of different countries, working for improving academic competence in Higher Education, have the common goal of discovering new ways to help students becom independent learners.

Behavioral self-control training is one approach that has been recently used by counselors, educators and psychologists to reach this goal (Richards, C.S., 1981; Kirschenbaum & Perri, 1982).

This point of view includes four general strategies and a variety of techniques, that could be combined in order to develop a training program for undergraduate students. The four strategies, as Thorenson & Coates (1976) suggest, are: Commitment, Self-observation, Environmental planning and Self-administered consequences. Among the most widely use techniques are: Self-instructions, Thought stopping, Stimulus control, Relaxation and Self-contracting (Groveman, Richards & Caple, 1975).

Behavioral self-control training, although useful, it's not sufficient to help students develop the skills necessary to do well at the college level. Therefore, it is better to combine this approach with others(general counseling, study skills training, etc) to achieve better results (Kirschenbaum & Perri, o.c.).

In Venezuela, since 1979 the Venezuelan Government decided to install a wide program for the development of Intelligence (Presidencia de la República, 1984). One of the sub-programs, "Learning to think" is based on De Bono's work in England (1980) and other countries.

This program includes more than 40 lessons and the same number of "thinking tools" that can be used to develop thinking strategies in the student.

At the Independent Studies Program of the Universidad Simón Bolívar, we decided to combine Behavioral self-control training with the first 10 CoRT thinking lessons to find out whether these"tools" would be a good adjunt to the standard Behavioral self-control training program.

Therefore, the purpose of this study was to compare the effects of Self-control training alone or in combination with CoRT lessons on academic performance of freshmen students from the Independent Studies Program of the Universidad Simón Bolívar (U.S.B).

METHOD:

Subjects:

The 29 subjects of this study (19 males, 10 females; $\bar{x}$ = 20 years) were selected from the 51 freshmen students admitted to the Independent Studies Program at the U.S.B (Venezuela) in September, 1981.

19 students out of 34, who were interested and finally enrolled an elective course of Self-control and Study behavior, were assigned at random to a Self-control group (n=9) or a Self-control + Thinking lessons group (n = 10). From the remaining freshmen students, it was formed a no contact control group (n = 10).

Materials:

Measures of dependent variables. Three dependent measures were obtained:

1.- credits earned per term

2.- academic average: a relation between the number of exams presented per credit and the number of credits earned (A.A. = n° of exams/n° of credits earned).

3.- speed average: a relation between the number of credits earned and the time spent in the program (S.A. = n° of credits earned/time in the program).

In order to examine precourse equivalence in relevant variables, the above measures were obtained:

1.- total score in the Self-control schedule (Rosenbaum, 1980)
2.- total score in the Self-control and study behavior schedule (Yáber, unpublished manuscript)
3.- study orientation score on the survey of study habits and attitudes (SSHA) (Brown & Holtzman, 1966).
4.- final score admission at the Independent Studies Program

PROCEDURE:

At the beginning of the term, it was administered to the 51 freshmen students, the Self-control schedule, the Self-control and Study behavior schedule and the Survey of study habits and attitudes. Also, it was collected the students final score admission to the Independent Studies Program.

All the students were informed about an elective course of Self-control and Study behavior with credits for their studies. 34 students went to ask for additional information about the course, but only 19 students finally enrolled and finished the course.

The subjects were assigned at random to the experimental conditions: 9 to the self-control group and 10 to the self-control + CoRT lessons condition. From the remaining students, it was formed a no contact control group.

The two variations of the course were administered by the author, two days a week for twelve weeks (36 hours). The contents in both conditions can be examined in Table 1.

One week session was dedicated to teach new material or to discuss it with the group. The other session was employed in supervising the individual self-control projects.

Once the course was over, there were readministered the self-report inventories and also collected the three measures of the dependent variable. Successively, three months and six months later, the three indicators of academic performance were collected again.

TABLE 1: SELF-CONTROL TECHNIQUES AND CoRT LESSONS

SELF CONTROL TECHNIQUES	CoRT LESSONS
1.- Self-Observation	1.- PMI
2.- Commitment, Self-instructions	2.- CTF
3.- Systematic planning	3.- Rules
4.- Stimulus Control	4.- C & S
5.- Thought Stopping	5.- PMO
6.- Self-administered relaxation	6.- Planning
7.- Self-Contracting	7.- Pb
8.- Self-reward and Self-Punishment	8.- Alternatives(APS)
9. Maintenance: A Self-control project	9.- OPV

DATA ANALYSIS:

Three univariate analyses of variance, and the same number of factorial repeated measures analyses of variance and covariance analyses were used.

If significant pretreatment measures were found, these measures were used as covariates in examining postreatment scores.

The first analysis had the objective to examine the relevant variables in order to determine whether or not the student were equivalent on these measures, prior to the course.

The remaining of the analyses were oriented to test if treatment, repeated measures of interaction, were responsible for the variations in the three measures of the dependent variable (credits earned, academic average and speed average).

Statistical analysis were running in an Apple II + personal computer using an statistical package developed by Steinmetz et al. (1981).

All the results were contrasted against a 5% significant level.

RESULTS:

Analysis 1:

Pretreatment equivalence:

The univariate analyses of variance calculated to test the equivalence in relevant variables, showed that there were no differences between the 3 groups in: self-control $F(2.25)= 1.07$ ($p>0.05$), self-control and study behavior $F(2.22)=0.01$ ($p>0.05$) and the study orientation score $F(2.26)=1.83$ ($p>0.05$). With respect to the final score admission, it was found significant differences between the groups, favoring the control group, $F(2.26)=7.08$ ($p<0.01$), so it was decided to include this variable as a covariate in the remaining analyses.

Analysis 2:

Credits earned:

Table 2 shows the mean passed units for the three experimental conditions as a function of trimester.

INSERT TABLE 2 ABOUT HERE

The "F" test from covariance analysis for credits earned in the first term using the final score admission as covariate was significant. $F(2.25) = 11.31$ ($p<0.05$). The a posteriori contrasts using the t test showed that there were differences between the two experimental groups with respect the control group, favoring the experimental groups Self-control vs. control, $t(17) = 3.24$ ($p<0.05$); Self-control + CoRT lessons vs. control, $t(18) = 2.96$ ($p<0.05$).

Nevertheless, it was not found significant differences between the experimental groups, $t(17) = 1.19$ ($p<0.05$).

"F" tests from the repeated measures factorial design showed significant differences for the main effect of the treatment variable, $F(2.26) = 7.88$ ($p<0.05$), but neither for repeated measures nor for interaction.

The a posteriori contrasts using Tukey tests, showed absence of differences between the experimental groups, $q(3.26) = 0.03$ ($p>0.05$) but differences favoring the experimental groups against the control group. Self-control vs. control, $q(3.26) = 4.88$ ($p<0.05$) and Self-control + CoRT lessons vs the Control group $q(3,26)=4,06(p<0.05)$

The mean passed units for the three experimental conditions as a function of trimester can be seen in Figure 1.

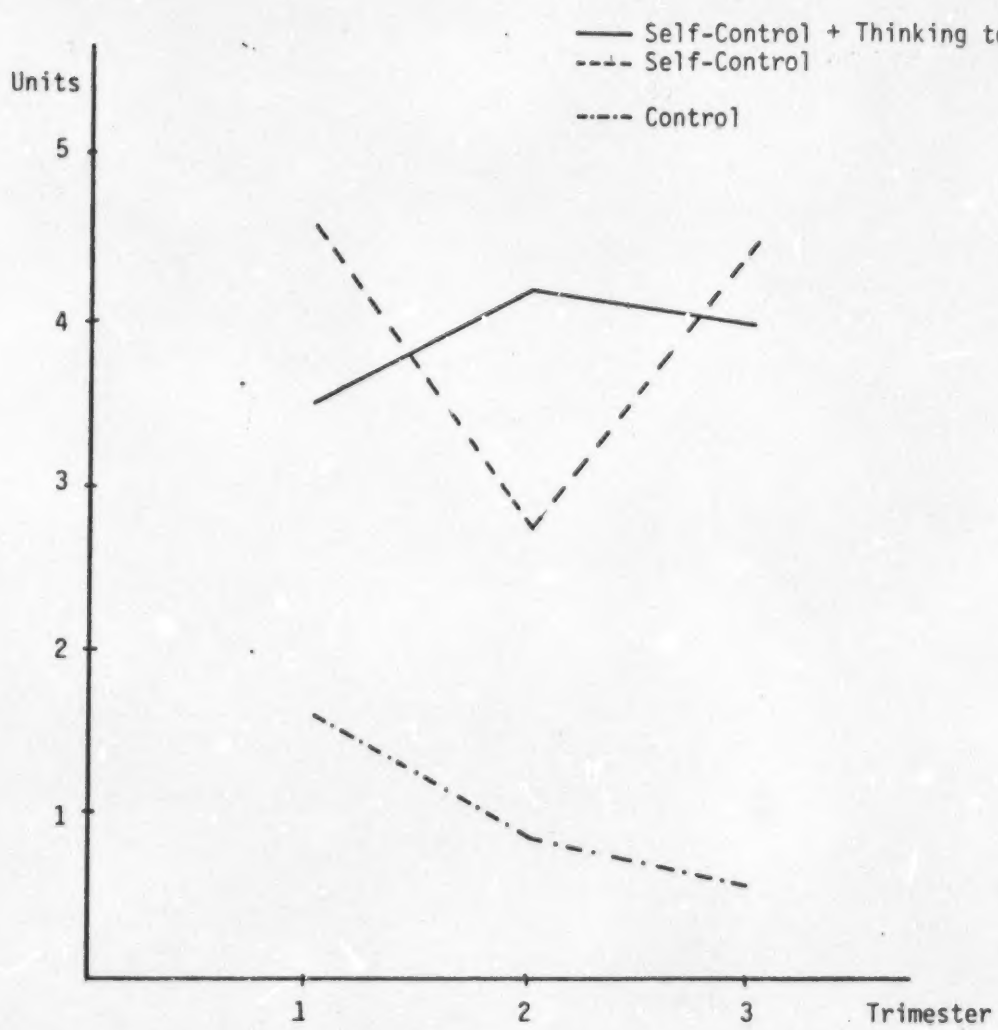

Figure 1.- Mean passed units for the three experimental conditions as a function of trimester

Analysis 3:

Academic Average:

Table 3 shows the mean Academic Average for the Three experimental conditions as a function of time.

INSERT TABLE 3 ABOUT HERE

Examining the results in figure 2, it can be noted that the Speed Average that correspond to the Control group, is far from 1, which is the ideal Academic Average. This result indicate that this group rarely attended exams and/or passed credits along the nine month period.

The "F" tests from covariance analysis for Academic Average in the first trimester, using the final score admission as covariate was significant. $F(2,25) = 4,32$ ($p < 0,05$). The "t" tests showed absence of differences between the experimental groups $t(17) = -0,23$ ($p > 0.05$) and also absence of differences between the Self-Control and The Control group $t(17) = 1,91$ ($p > 0.05$). Nevertheless it was found differences between the Self-Control and CoRT Lessons and the Control Group $t(18) = 2,38$ ($p < 0.05$).

"F" tests from the repeated measures factorial design, showed significant differences only for the main effect of treatment. $F(2,26) = 7,88$ ($p < 0.05$).

The a posteriori comparisons showed absence of differences between the experimental groups, $q(3,26) = 0.07$ ($p > 0.05$), but differences favoring the experimental groups against the Control group. Self-Control vs. Control $q(3,26) = 4$ ($p < 0.05$) and Self-Control + CoRT Lessons vs Control $q(3,26) = 3,93$ ($p < 0.05$).

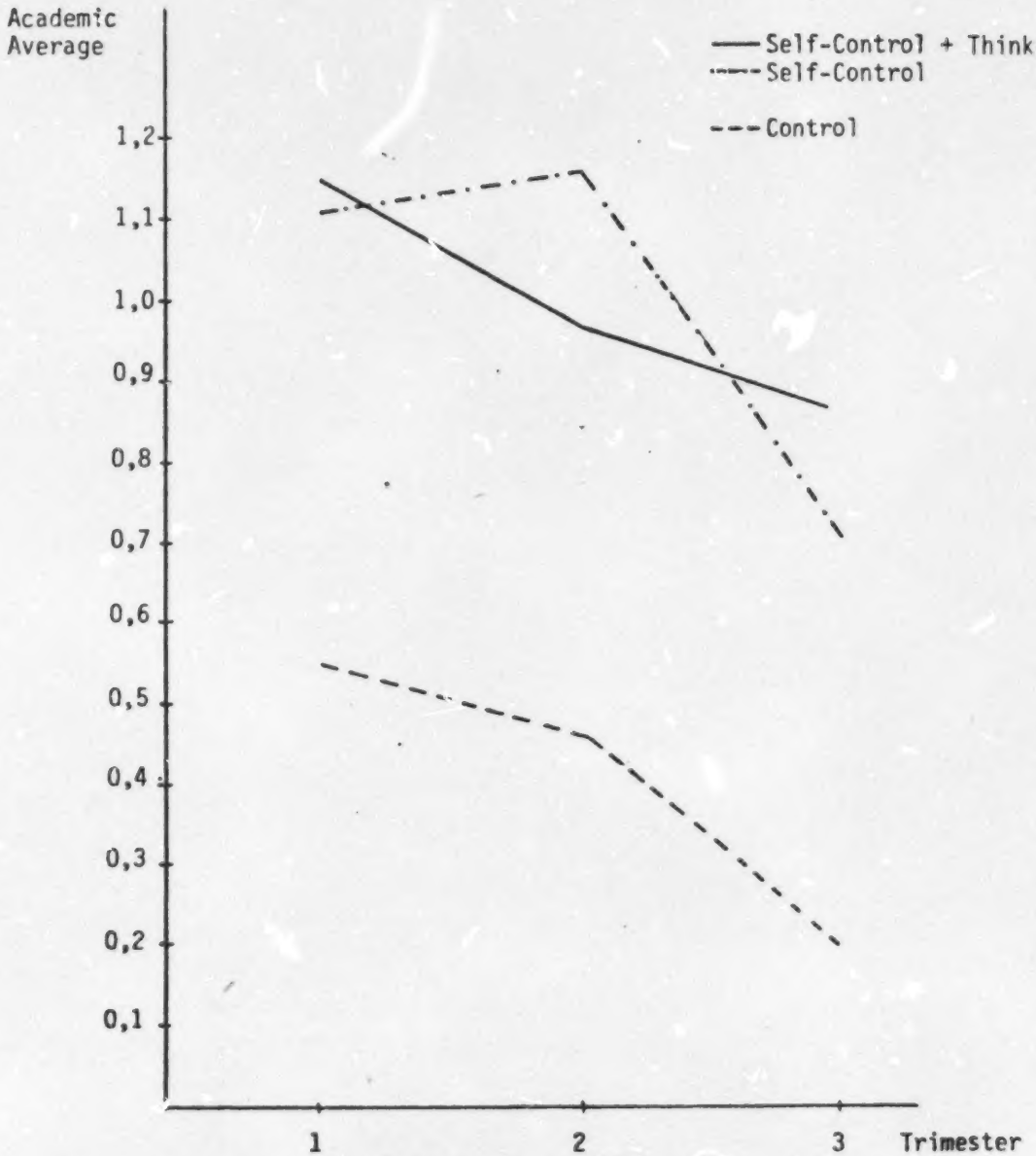

Figure 2.- Mean Academic Average for the Three experimental conditions as a function of trimester

Analysis 4

Speed Average

Table 4 shows the mean speed average for the three experimental conditions as a function of the term.

INSERT TABLE 4 ABOUT HERE

The "F" tests from covariance analysis for speed average in the first trimester, using the final score admission as covariate was significant. $F(2,25)=11,59$ ($p<0.05$). The a posteriori comparisons using the "t" tests showed that there were not differences between the experimental groups $t(17)= 1.30$ ($p>0.05$), but there were differences between the two experimental groups with respect the control group favoring the experimental groups. Self-Control vs. Control $t(17)= 3,32$ ($p<0.05$), and Self-Control + CoRT Lessons vs. Control $t(18)= 2,97$ ($p<0.05$).

"F" tests from the repeated measures factorial design showed significant differences between treatments $F(2,26)=8,85$ ($p<0.05$), between trimesters $F(2,52)=33,7$ ($p<0.05$) and interaction $F(4,52)= 2,73$ ($p<0.05$). A posteriori comparisons indicated absence of differences between the experimental groups $q(3,26) = 0.68$ ($p>0.05$) but differences favoring the experimental groups over Control. Self-Control Vs. Control $q(3,26)= 5,48$ ($p<0.05$); Self-Control+ CoRT Lessons vs. Control $q(3,26)=4.8$ ($p<0.05$).

With respect to repeated measures, the a posteriori comparisons showed differences between the first and second (favoring the first) $q(3,52)= 9,44$ ($p<0.05$) and the same result between the first and the third $q(3,52)= 10,51$ ($p<0.05$). There were no differences between the second and the third trimester $q(3,52)= 1.02$ ($p>0.05$).

The results obtained with this dependent measure can be examined in figure 3.

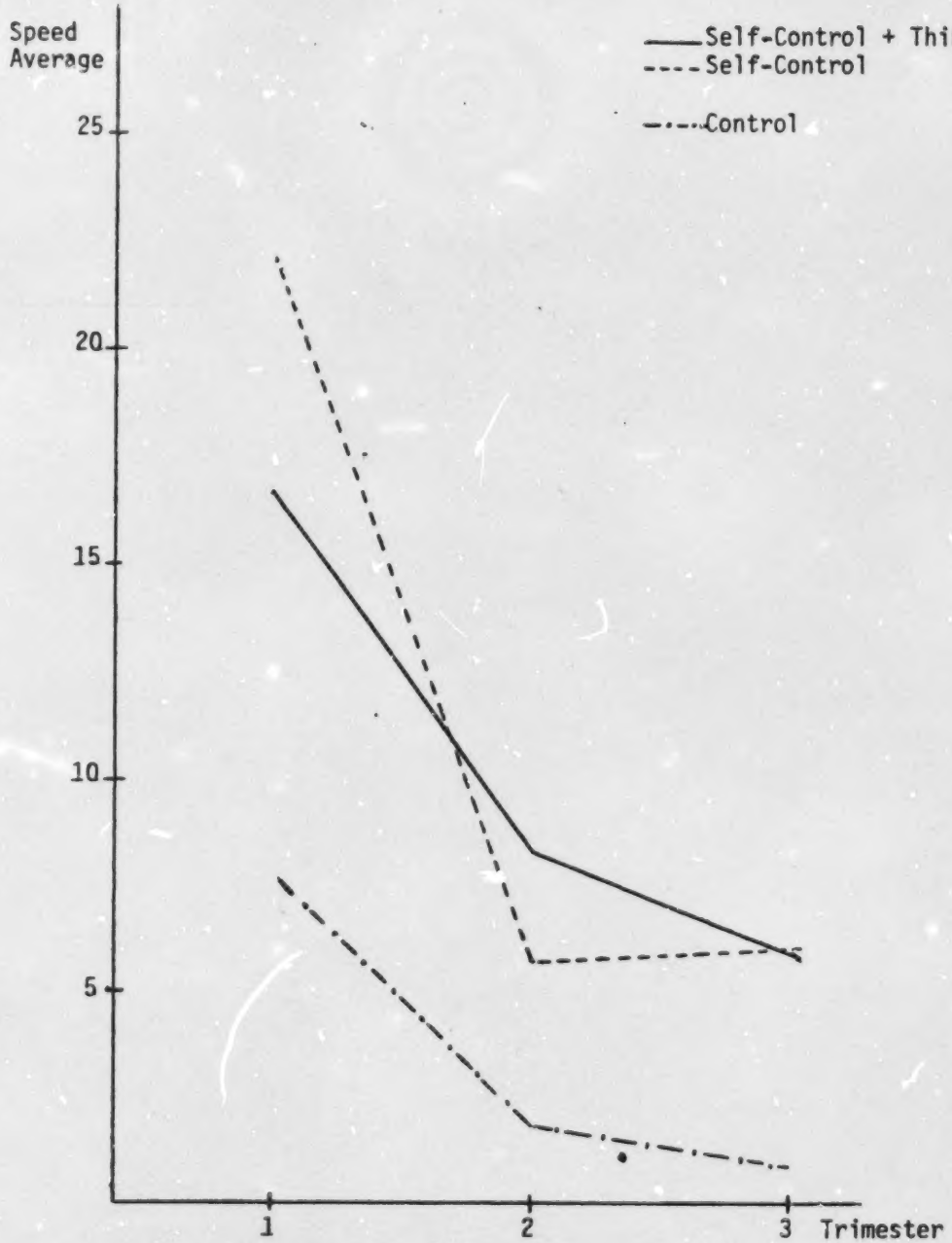

Figure 3.- Mean Speed Average for the Three Experimental conditions as a function of trimester

DISCUSSION:

The general objective of this study was to compare the relative efficacy of two variations of an elective course of Self-control and Study behavior in modyfing academic performance of freshmen undergraduate students. Results obtained indicated that the two experimental groups were equally effective to improve academic achievement with respect to a no contact control group along a nine month period.

These results confirm previous studies (Groveman, Richards & Caple, 1977; Richards & Perri, 1978).

The present findings cannot be attributed to tendencies to apply Self-control strategies, study orientation or past academic history because these factors were previously evaluated and controled statisticaly. whether necessary.

Despite the absence of significant differences between the experimental groups, students that received the CoRT lessons were greatly satisfied because of the utility of these "tools" for studying and taking exams of Social Sciences and Literature.

This application of thinking lessons has been documented early (De Bono, 1980).

Future studies must attempt to control additional factors that could account the results such as: blind instructors, a placebo control group, a test anxiety assessment, and whether possible, complete randomization. Likewise, it would be important to run new experiments with variations of the two components in order to maximize the treatment package developed until now.

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TABLE 2

Means of passed units for the effects of experimental conditions as a function of trimester

Treatment	Trimester		
	1	2	3
Self-Control	4,55	2,77	4,44
Self-Control + C.L.	3.5	4.2	4.
Control	1.6	0.9	0.6

TABLE 3

Means of Academic Average for the effects of experimental conditions as a function of trimester

Treatment	Trimester 1	2	3
Self-Control	1,11	1,16	0,71
Self-Control +C.L.	1,15	0,97	0,2
Control	0,55	0,45	0,2

TABLE 4

Means of Speed Average for the effects of experimental conditions as a function of trimester

Treatment	Trimester 1	2	3
Self-Control	22,22	5,55	5,92
Self-Control + C.L.	16,66	8,4	5,73
Control	7,61	1,8	0,8